IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No.:		10/604,703	Confirmation No.: 1702
Applicant	:	Elder et al.	
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Title	:	Multiple Battery System and Auxiliary Battery Attachment System	
TC/A.U.	:	2838	
Examiner	:	Pia Florence Tibbits	
Docket No.	:	013476-05187	

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Commissioner for Patents
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THIRD DECLARATION OF WILLIAM J. WEISS UNDER 37 C.F.R. § 1.132

I, William J. Weiss, make this declaration on personal knowledge and declare as follows:

1. I am a practicing Electronic Engineer and am currently General Manager of Total Engineering Solutions, LLC of Deerfield Beach, Florida. Total Engineering Solutions, LLC and Reserve Power Cell, LLC, assignee of the above-identified patent application, are commonly owned.

2. I have been designing and overseeing the design of various analog and digital circuits for the past 13 years, including various control circuits. I received a T6 Degree in Electronic Engineering from Johannesburg Technical College, Johannesburg, South Africa in 1992. Based on my understanding, the T6 Degree in Electronic Engineering is equivalent to a Bachelor of Science in Electrical Engineering. Prior to joining Total Engineering Solutions, I was Vice President of Hedmor Inc. of Coral Springs, Florida.

3. I have read U.S. Patent Application Serial No. 10/604,703 (hereinafter "the '703 Application"), including the specification and drawings, and understand the contents thereof.

4. I have also read and understand pending claims 88-105, as well as new claims 106-108.

5. I have further read and understand the Final Office Action dated September 6, 2006 ("Final Office Action") and all the references that have been cited to date by Applicants or the Examiner in connection with the '703 Application, particularly including the Pacific Dunlop of Australia brochure on Exide Switch Technology (hereinafter the "Exide Switch Brochure"), UK Patent Application Publication No. GB 2 220 112 A in the name of Michael Rodrigues (hereinafter "Rodrigues"), U.S. Patent No. 6,172,478 B1 issued to Leppo et al. (hereinafter "Leppo"), and U.S. Patent No. 6,734,651 B2 issued to Cook et al. (hereinafter "Cook").

6. I provided my interpretation and understanding of the Exide Switch Brochure in my Second Declaration under 37 C.F.R. § 1.132 dated April 28, 2006. Accordingly, I do not address that reference in this declaration. Instead, this declaration focuses on my interpretation and understanding, as one of ordinary skill in the art of battery control technology, of Rodrigues, Leppo, and Cook. Rodrigues and Leppo were cited for the first time in the Final Office Action.

7. Based on my review of Rodrigues, Rodrigues discloses an add-on mechanism to allow a motor vehicle user to "jump start" a main battery (21) through the push of a button when the main battery (21) becomes discharged. As discussed in the abstract of Rodrigues, the add-on mechanism includes a flat conducting copper bus-bar strip (1) provided with apertures (2, 5, 12) to enable quick and easy bolting of a rectifier (4) and a solenoid relay switch (7) to the positive terminal (14) of an auxiliary battery (15). The relay switch (7) includes a coil connection (22) to connect a remote momentary switch (25), actuatable by a user of the motor vehicle, to a contact terminal (9) for connection to the positive terminal (20) of the main battery (21). Closure of the user actuatable switch (25) energizes the relay coil of relay switch (7), thereby interconnecting the relay switch contacts (8, 9) to short-out or shunt the rectifier (4), thus connecting the auxiliary battery (15) in parallel with the main battery (21).

8. The arrangement and operation of Rodrigues' add-on mechanism may be most readily understood through an analysis of Figure 3, which has been reproduced below, and its accompanying text at pages 4 and 5 of Rodrigues.

Appl. No. 10/604,703
Third Weiss Decl. dated Nov. 9, 2006
Part of RCE Submission dated Nov. 9, 2006

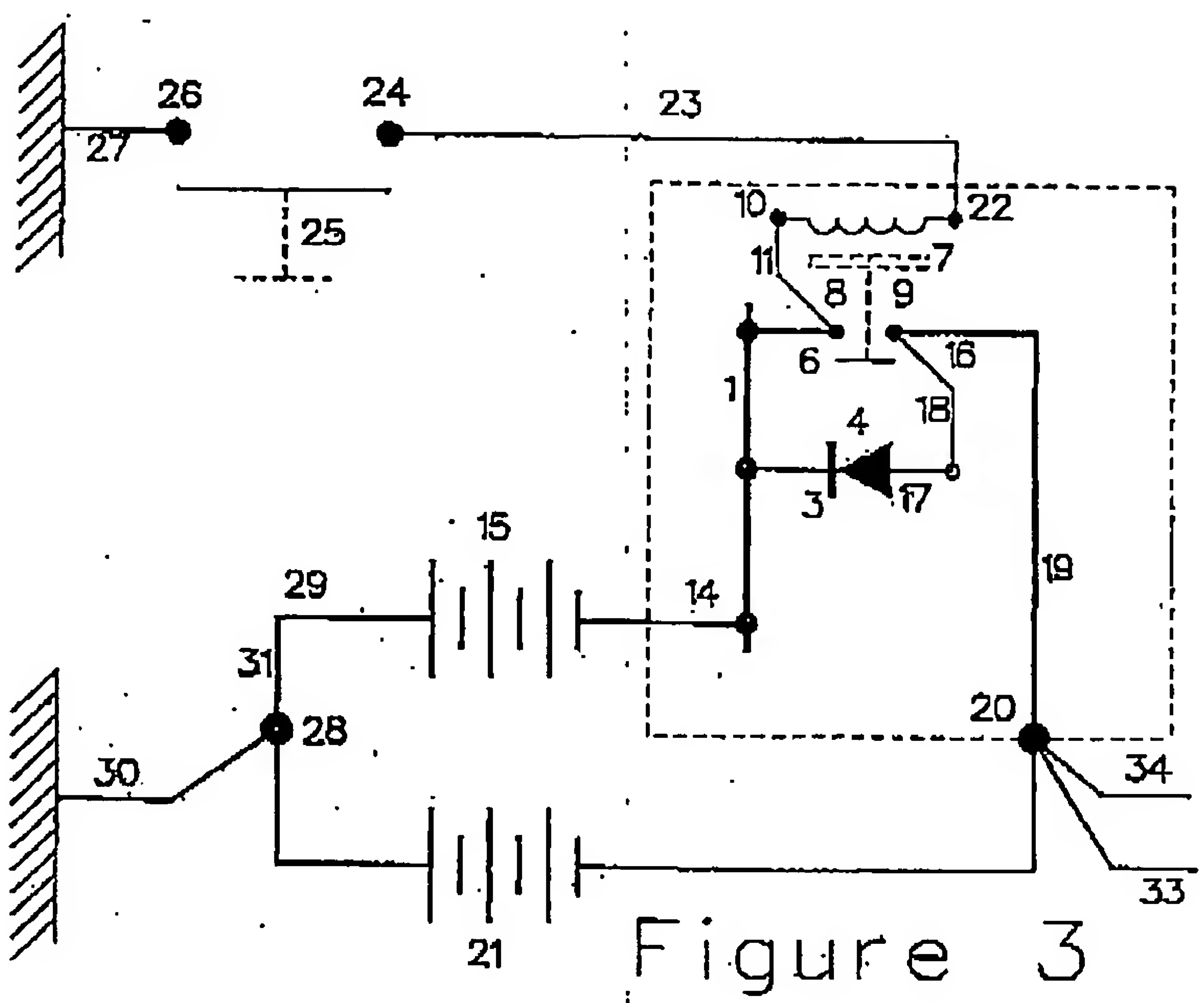


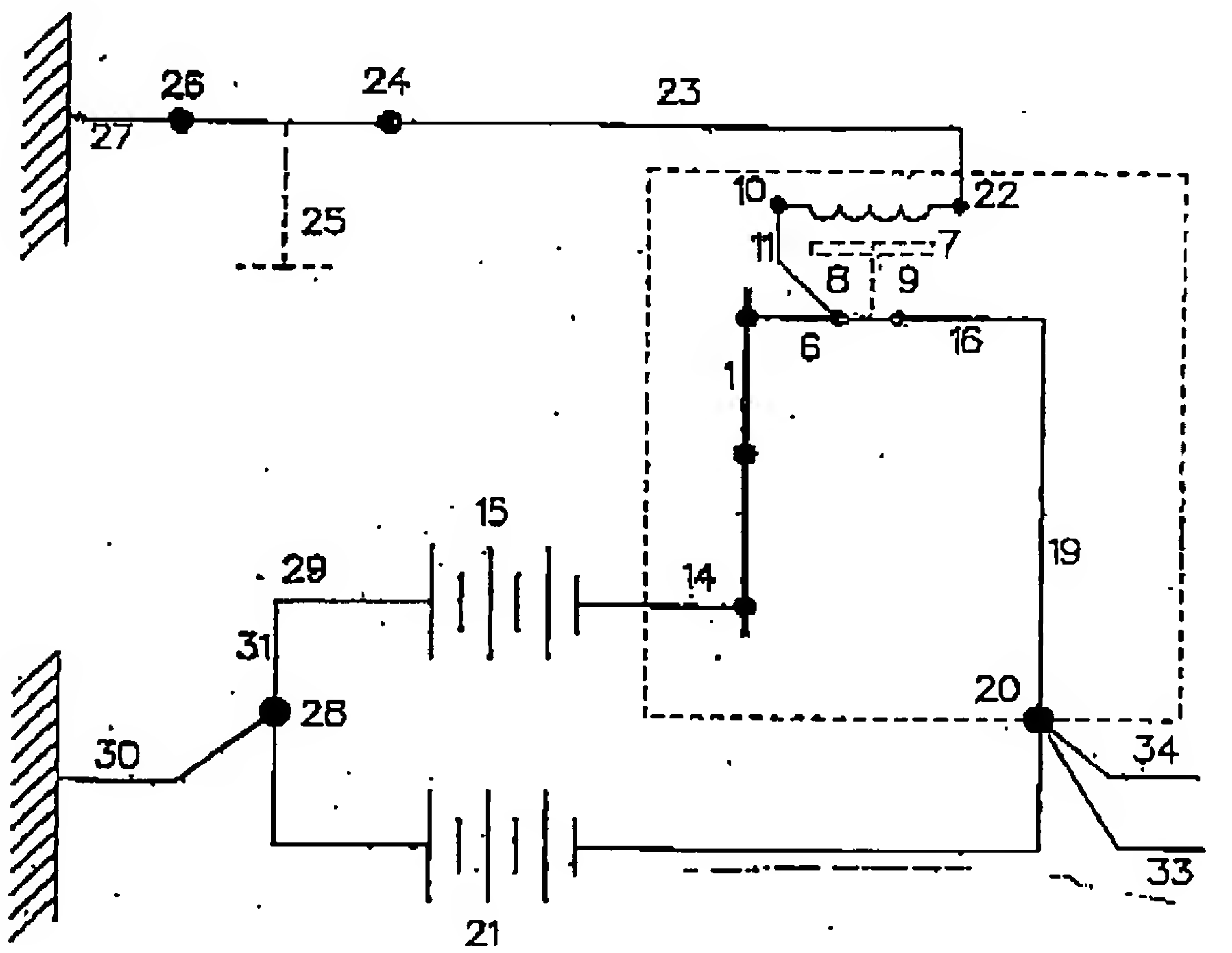
Figure 3

9. The add-on mechanism disclosed by Rodrigues includes an auxiliary battery (15), a rectifier (4), a solenoid relay switch (7), and a remote, user-actuatable switch (25). The add-on mechanism is connected to the main battery (21) such that the negative terminal (29) of the auxiliary battery (15) is connected to the negative terminal (28) of the main battery (21) as depicted in Figure 3 and discussed at page 4, lines 26-29 of Rodrigues. The rectifier (4) and the solenoid relay switch (7) are connected between the positive terminal (20) of the main battery (21) and the positive terminal (14) of the auxiliary battery (15), such that under normal operating conditions, the relay switch (7) is open and the main battery (21) supplies electrical energy to the starter motor and other functional circuitry (via leads 33 and 34), as well charging the auxiliary battery (15) via the rectifier (4).

10. However, under "jump start" conditions when the remote switch (25) is actuated by a user, the solenoid relay switch (7) is energized and the relay contacts (8, 9) short out or shunt the rectifier (4), thereby causing the positive terminals (14, 20) of both batteries (15, 21) to be connected together. Therefore, under "jump start" conditions, the main and auxiliary batteries (20, 15) are connected in parallel.

11. My understanding of the operation of the add-on mechanism of Rodrigues is confirmed by the express text of Rodrigues. In particular, the abstract of Rodrigues expressly states that "[c]losure of the switch 25 energises the relay coil thereby closing the relay switch contacts 8, 9 to shunt rectifier 4, thus connecting the auxiliary battery 15 in parallel with the main battery 21."

12. Figure 3 of Rodrigues is re-illustrated below under "jump start" conditions.



13. As is evident from the circuit schematic above, when the remote switch (25) is actuated and the solenoid relay switch (7) closes, contact terminal 6 is electrically connected directly to contact terminal 16 by virtue of closure of the solenoid relay switch (7), thereby equivalently electrically connecting the positive terminal (14) of the auxiliary battery (15) to the positive terminal (20) of the main battery (21) through a heavy duty cable (19). In other words, when the solenoid relay switch (7) closes, the main battery (21) is connected in parallel with the auxiliary battery (15).

14. As a result, Rodrigues does not disclose or suggest at least the switching device recited in Applicants' claims because neither the remote switch (25) nor the solenoid relay switch (7) of Rodrigues is operable in two independent positions such that when either switch (25, 7) is in the

first position (e.g., open), the main battery is the sole source of electrical energy to the electrical system and when either switch (25, 7) is in the second position (e.g., closed), the standby or auxiliary battery is the sole source of electrical energy to the electrical system, such that the main battery and the standby battery are never connected in parallel and never supply electrical energy to the electrical system simultaneously. Instead, when the remote and relay switches (25, 7) of Rodrigues are in the second (i.e., closed) position, the main battery (21) and the auxiliary battery (15) both supply electrical energy to the electrical system simultaneously by being connected in parallel.

15. Based on my review of Leppo, Leppo discloses a power distribution system for a portable electronic device, such as a laptop computer. The general configuration for the distribution system is depicted in Fig. 1a, which is reproduced below.

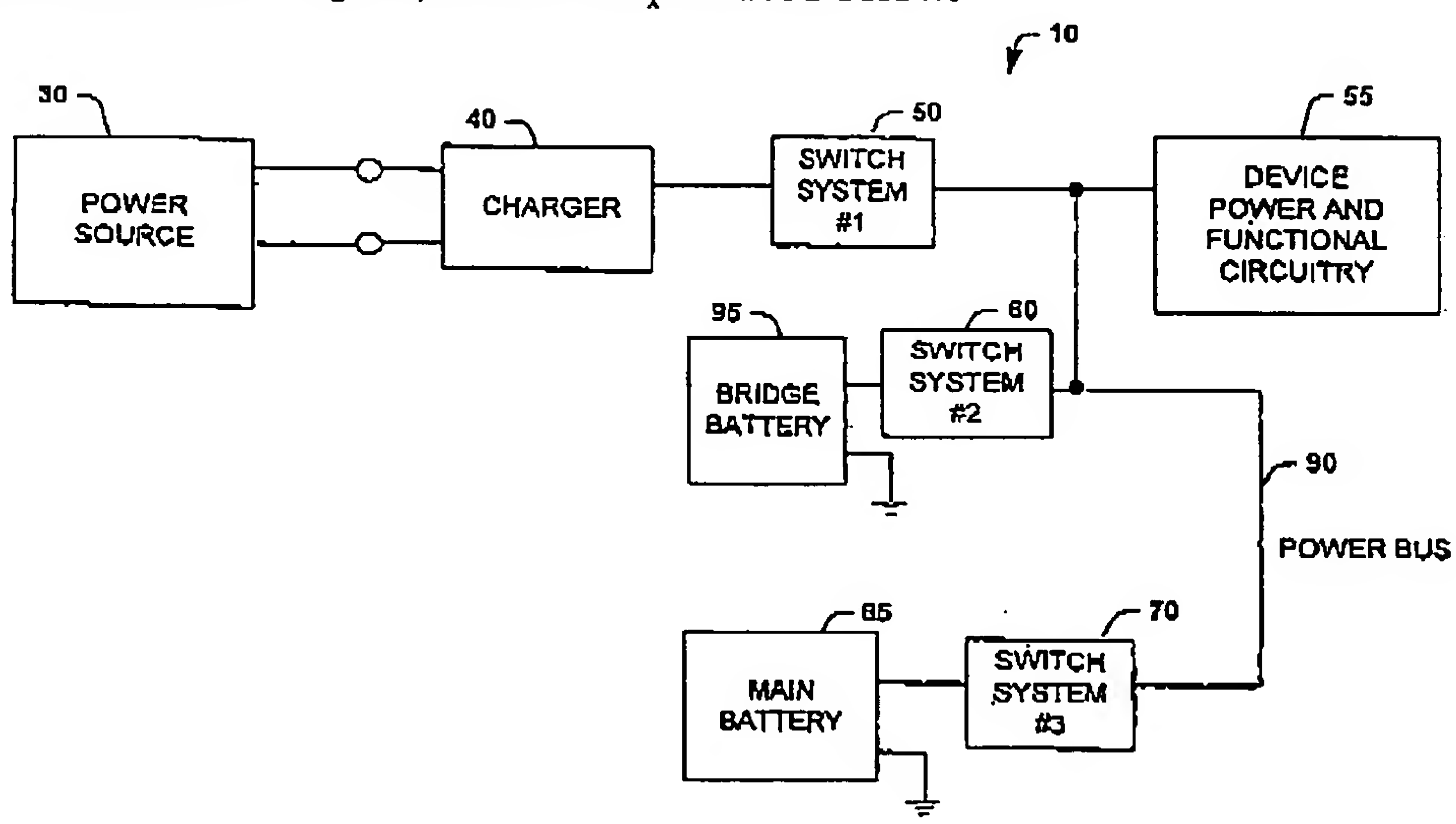


Fig. 1a

16. As shown in Fig. 1a of Leppo, the power distribution system (10) includes a charger (40) that receives AC power from a power source (30), a main battery (65), a bridge battery (95), and three switch systems (50, 60, 70). The first switch system (50) couples the charger (40) to a power bus (90), wherein the power bus (90) distributes DC power to the functional circuitry (55) (see col. 4, lines 1-9). So long as the power source (30) is supplying AC power to the charger (40), the charger (40) supplies DC power to the functional circuitry (55) and recharges the main

battery (65) through the third switch system (70) (see col. 4, lines 13-15). The second switch system (60) couples the bridge battery (95) to the power bus (90) (see col. 4, lines 10-11). The third switch system (70) couples the main battery (65) to the power bus (90) (see col. 4, lines 11-13). In a preferred embodiment, as depicted in Fig. 1b and Fig. 2 of Leppo, the first and second switch systems (50, 60) are implemented with diodes (51, 61) and the third switch system (70) is implemented with a diode (75) and a FET (71) in combination (see col. 4, lines 24-27).

17. Operation of the power distribution system (10) of Leppo is best understood with reference to Fig. 1b, which figure is reproduced below.

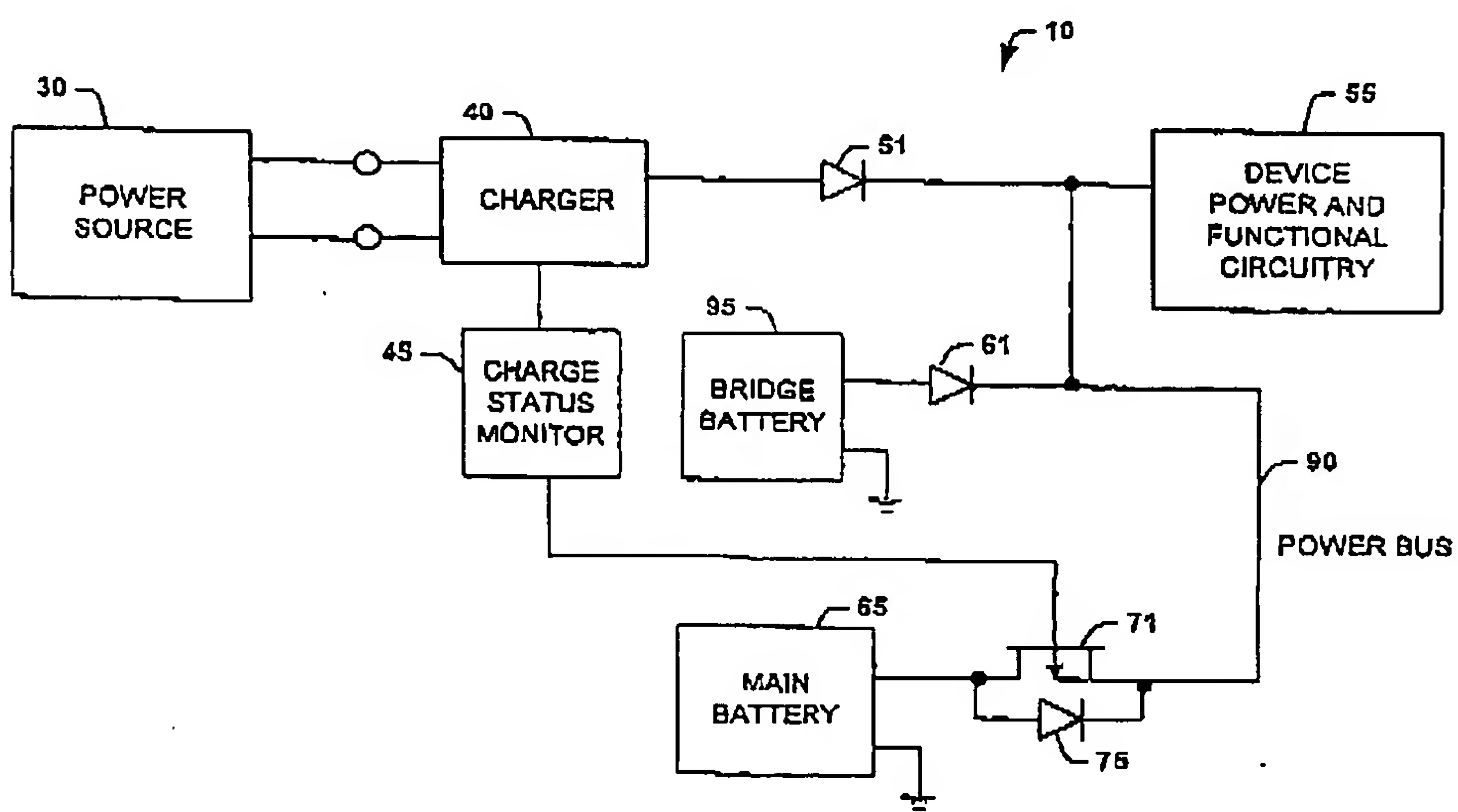


Fig. 1b

18. When the charger (40) is connected, the charger (40) supplies DC power to the functional circuitry (55) and recharges the main battery (65) through the FET (71) (see col. 4, lines 6-8, 51-53). The power distribution system (10) also includes a charge status monitor (45), preferably implemented with a timing circuit, to limit the amount of time the main battery (65) is charged in order to prevent damage to the main battery (65) (see col. 4, lines 41-56). As depicted and disclosed in Leppo, only the main battery (65) is charged from the charger (40) via the FET switch (71). The bridge battery (95) is never charged.

19. Thus, Leppo discloses a circuit for charging the main battery, but does not disclose a one-way charging circuit as recited in Applicants' claims because Applicants' "one-way charging circuit" is connected between the positive output terminal of the main battery and the positive output terminal of the standby battery so as to facilitate charging of the ***standby battery***. Thus, instead of charging the ***main battery*** as in Leppo, Applicants' one-way charging circuit charges the ***standby battery***. Moreover, the charging circuit recited in Applicants' claims is from battery-to-battery, not from AC/DC charger-to-battery.

20. Additionally, the switching systems (50, 60, 70) disclosed in Leppo do not have two or more positions. Instead, each switching system (50, 60, 70) in Leppo has only one ***position***, although each switching system (50, 60, 70) has two or more operating ***states***. For example, the switching systems (50, 60) that are connected to the outputs of the charger (40) and the bridge battery (95) can be in the "on" state or the "off" state, but such systems (50, 60) always remain in the same position (i.e., fixedly connected between the power bus (90) and a respective one of the charger (40) and the bridge battery (95)). The switching system (70) connected between the main battery (65) and the power bus (90) may have more than two states when taking into account the charging operation. For instance, the main battery switching system (70) may have an "on" state and an "off" state (i.e., for the diode (75)) with respect to supplying DC power to the power bus (90), as well as a "charge" state and a "non-charge" state (i.e., for the FET (71)) with respect to charging the main battery (65). Regardless of the number of ***states*** that may be entered by the main battery switching system (70), the system (70) always remains in a single ***position*** (i.e., fixedly connected between the main battery (70) and the power bus (90) and, when considering main battery charging, further fixedly connected between the main battery (65) and the charge status monitor (45)).

21. To individually select a battery (65, 95) or the charger (40) to supply DC power, Leppo relies solely on the inherent operation of diodes, not the use of multi-position switches, to control which power source is supplying energy to the functional circuitry (55) at any given time. For example, when the charger (40) is plugged in and receiving power from the external power source (30), the voltage on the power bus (90) connecting the anodes of the three diodes (51, 61,

75) together is larger than (a) the voltage of the main battery (65) less the voltage drop of the diode (75) coupled to the output of the main battery (65) and (b) the voltage of the bridge battery (95) less the voltage drop of the diode (61) coupled to the output of the bridge battery (95). Since a sufficient voltage drop across the main battery and bridge battery diodes (61, 75) does not exist when the charger (40) is operational, no current flows through those diodes (61, 75). Consequently, only the charger (40) supplies energy to the functional circuitry (55). The operation of Leppo's power distribution system when the charger (40) is operational is disclosed at column 6, lines 6-19.

22. When the charger (40) is removed or unplugged, the main battery (65) supplies electrical energy to the functional circuitry (55). The voltages of the main battery (65) and the bridge battery (95) are chosen such that the voltage produced at the output of the main battery diode (75) is greater than the voltage of the bridge battery (95) less the voltage drop of the diode (61) coupled to the output of the bridge battery (95). As a result, when the charger (40) is removed, an adequate voltage drop exists across the main battery diode (75) causing the diode (75) to conduct. With the main battery diode (75) conducting, the main battery (65) supplies the electrical energy to the functional circuitry (55). However, since the voltage of the main battery (65) has been selected sufficiently high, the voltage produced at the output of the main battery diode (75) by the main battery (65) is greater than the voltage of the bridge battery (95) less the voltage drop across its output diode (61). As a result, the bridge battery diode (61) does not conduct and the bridge battery (95) remains non-operational. Operation of Leppo's distribution system with the charger (40) removed and the main battery (65) active is disclosed at column 6, lines 32-46.

23. When the charger (40) is removed and the main battery (65) has discharged, a voltage drop exists across the bridge battery diode (61) causing the bridge battery (95) to finally conduct. In this case, the bridge battery (95) powers the functional circuitry (55) at a reduced level due to its voltage being lower than the voltages supplied by the charger (40) and/or the main battery (65). Operation of Leppo's distribution system with the charger (40) removed, the main battery

(65) discharged, and the bridge battery (95) active is disclosed at column 5, lines 23-30 and column 6, lines 49-55.

24. Therefore, while Leppo discloses a circuit arrangement for independently sourcing energy from multiple energy sources, Leppo does so in a way that is completely different than the arrangement disclosed and claimed in Applicants' patent application. In particular, Leppo does not utilize at least the multi-position switching device and the one-way charging circuit recited in all of Applicants' claims.

25. Based on my review of the Background section of Applicants' patent application, Paragraphs [0010] through [0013] of Applicants' specification discuss the negative impact of placing a discharged main battery in parallel with a reserve or standby battery through use of a shunt to bypass a charging diode, as well as the discharge effects of leaving the reserve battery engaged for too long a period of time. The discussed discharge effects include an undesirably long time to recharge the reserve battery.

26. However, the discharge of the reserve battery due to the ***occasional or overextended*** use of the reserve battery in parallel with the main battery is not a regular or ***periodic*** discharge when the main battery is operating normally. That is, there is no regularity or periodicity associated with using the reserve battery to simply jumpstart the main battery as is discussed in Applicants' background. As a result, based on my further review of Applicants' claims 101 and 102 as listed in the Submission in Support of a Request for Continued Examination under 37 C.F.R. § 1.114 to which this Declaration is attached, Applicants' background does not disclose the discharge cycling covered by Applicants' claims 101 and 102.

27. Based on my review of Cook, Cook discloses a multi-battery system containing a main or primary battery and a standby or reserve battery. The reserve battery is connected in parallel with the main battery for a period of time responsive to user actuation of a wireless remote control. Cook intentionally limits the time that the reserve battery is in use ***after*** the reserve battery has been placed in parallel with the main battery in order to reduce the amount of

discharge of the reserve battery. (*See* col. 6, lines 18-35 and 55-57; col. 7, lines 1-12.) In other words, Cook discloses a timer arrangement that insures that the reserve battery is only used for the time necessary to jump-start the main battery by limiting the amount of time that the reserve battery remains connected in parallel with the main battery after being engaged by the wireless remote control. (*See* col. 2, lines 8-12, 21-26, and 33-39; col. col. 6, lines 18-35 and 55-57; col. 7, lines 1-12.) Cook does not disclose or suggest any automated discharge cycle for the reserve battery when the main battery is operating normally.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the '703 Application or any patent issued thereon.

William J. Weiss

Date: 11/09/06

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